

REMARKS

This application contains claims 27-45, all of which were rejected in the present Official Action. Reconsideration is respectfully requested in view of the remarks that follow.

Claims 27-45 were rejected under 35 U.S.C. 103(a) over Rekhter et al. (U.S. Patent 6,339,595) in view of Gai et al. (U.S. Patent 6,032,194). Applicant respectfully traverses this rejection.

Independent claim 27 recites a method for communication in a transparent LAN service (TLS), which acts as a virtual bridge between user equipment connected to its endpoints. In order to remove loops in the TLS topology, label-switched routers (LSRs) transmit spanning tree protocol (STP) control frames via the tunnels. Each control frame comprises a control traffic label and a bridge protocol data unit (BPDU). The control traffic label indicates to the LSRs that the STP is to be executed by the LSRs without transmission of the BPDU to the user equipment. In this manner, the LSRs are able to remove loops in the topology of the TLS irrespective of the user equipment.

Rekhter describes a Layer 3 virtual private network (VPN), which uses “PE routers” and “CE routers” in providing layer 3 service over a VPN (col. 4, lines 34-57). Rekhter’s network uses the standard layer 3 Border Gateway Protocol (BGP) to detect and reject routing loops (col. 24, lines 39-57). In the present Official Action, the Examiner maintained that Rekhter teaches transmitting control frames among the LSRs in a TLS via label-switched tunnels (col. 41, lines 41-60). The cited passage, however, deals not with transmission of control frames, but rather with performing “Path MTU Discovery.” This procedure is defined in IETF RFC 1191 (col. 38, lines 15-17). As defined in the RFC, routers perform path MTU (maximum transmission unit) discovery by transmitting large data packets over the path in question, in order to determine the maximum packet size that can be transmitted. Thus, contrary to the Examiner’s assertion, Rekhter does not teach or suggest transmitting control frames via label-switched tunnels, as required by claim 27.

Gai describes a method for rapidly reconfiguring a computer network in which the spanning tree algorithm is executed (abstract). Gai describes transmission of BPDU frames (col. 10, lines 1-12, as cited by the Examiner), but makes no mention of tunnels or label-switched paths by any other name. Thus, Gai clearly does not teach or suggest transmitting control frames (or any other sort of frames) through a label-switched tunnel. Furthermore, although the Examiner maintained that Gai's BPDU frames comprise a control traffic label, Gai makes no reference to a control traffic label or any other sort of label. The Examiner did not identify any equivalent element in either Gai or Rekhter.

The Examiner went on to maintain that Gai's control traffic label indicates to the LSRs that the STP is to be executed by the LSRs without transmission of the BPDU to user equipment connected to endpoints of the TLS. There is no basis for this statement in Gai. Firstly, since Gai fails to disclose any sort of control traffic label, Gai could not possibly teach or suggest the use of such a label in invoking any sort of behavior on the part of his switches. Secondly, Gai neither teaches nor suggests that his switches might refrain from transmitting BPDUs to user equipment. On the contrary, the passage cited by the Examiner in this regard (col. 3, lines 8-13) makes clear that switches executing the conventional spanning tree algorithm used by Gai will transmit BPDUs to user equipment:

If the information from the received BPDU is "better" than the stored information, the switch adopts the better information and begins transmitting it... through its ports, except for the port on which the "better" information was received.

In other words, when one of Gai's switches receives a BPDU from another switch on a certain port with "better" information, the receiving switch will transmit BPDUs containing this information via all its other ports indiscriminately – regardless of whether the ports connect to other switches or to user equipment. Claim 27 recites a method that differs from this conventional model, in that the control traffic label causes the LSRs to avoid transmission of the BPDU to user equipment.

As a result of this feature of the present invention, loops are removed in the topology of the TLS irrespective of the user equipment. The Examiner maintained that Gai teaches this limitation in Col. 4, lines 15-51. Although Gai does describe avoidance of loops, the cited passage does not relate to this feature of Gai's methods, and certainly does not refer to removal of loops irrespective of user equipment. Upon careful study of Gai, Applicant was not able to find any teaching or suggestion of removing loops from network topology irrespective of user equipment.

Thus, to summarize, the cited art fails to teach or suggest several key elements of claim 27:

- Transmitting control frames among LSRs in a TLS via label-switched tunnels.
- Control frames comprising a control traffic label and a BPDU.
- The control traffic label indicating that the BPDU is not to be transmitted to user equipment.
- Removing loops from the TLS topology irrespective of the user equipment.

As noted in MPEP 2143.03, "To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art." In other words, if even one of the above elements were not taught or suggested by the prior art, claim 27 would be patentable. Under the present circumstances, it is clear that the Examiner has fallen far short of making a *prima facie* case.

Therefore, claim 27 is believed to be patentable over the cited art. In view of the patentability of claim 27, dependent claims 28-35 are also believed to be patentable.

Independent claims 36 and 45 respectively recite a communication device and a communication network that operate on principles similar to the method of claim 27. Claims 36 and 45 are thus believed to be patentable for the reasons explained above with respect to claim 27, as are claims 37-44, which depend from claim 36.

Notwithstanding the patentability of the independent claims in this application, Applicant believes that the dependent claims also recite independently-patentable subject

matter. In the interest of brevity, however, Applicant has refrained from arguing the patentability of the dependent claims in this response.

Applicant believes the remarks presented above to be fully responsive to all of the grounds of rejection raised by the Examiner. In view of these remarks, all of the claims now pending in this application are believed to be in condition for allowance. Prompt notice to this effect is requested.

In view of the above remarks, applicant believes the pending application is in condition for allowance.

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Respectfully submitted,

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